<u>REMARKS</u>

Claims 1-4, 7, 8, 10-12, and 14-23 remain pending in this application.

Claims 1 and 16-20 have been amended to define more clearly what Applicant regards as

his invention. Claims 1 and 16-23 are in independent form. Favorable reconsideration is

requested.

Claims 1, 7, 8, 10, 11, 15, 17, and 18 were rejected under 35 U.S.C. 103(a)

as being obvious from U.S. Patent 6,735,740 to <u>Sakai</u> in view of U.S. Patent 5,260,810 to

<u>Kanno</u>, U.S. Patent 5,953,464 to <u>Harrington</u>, and U.S. Patent 5,838,839 to <u>Seki</u>; Claims 2-

4, as being obvious from <u>Sakai</u> in view of <u>Kanno</u>, <u>Harrington</u>, <u>Seki</u>, and U.S. Patent

5,392,137 to <u>Okubo</u>; Claim 12, as being obvious from <u>Sakai</u> in view of <u>Kanno</u>, <u>Harrington</u>,

<u>Seki</u>, and U.S. Patent 5,729,664 to <u>Ishikawa</u>; Claim 14, as being obvious from <u>Sakai</u> in

view of <u>Kanno</u>, <u>Harrington</u>, <u>Seki</u>, and U.S. Patent 5,719,967 to <u>Sekine</u>; Claims 16, 19, and

20, as being obvious from <u>Sakai</u> in view of <u>Kanno</u>; and Claims 21-23, as being obvious

from <u>Sakai</u> in view of <u>Kanno</u>, and U.S. Patent 6,005,989 to <u>Frederic</u>.

Claim 1 is directed to an image processing apparatus including input means,

generating means, first and second pixel density converting means, and output means. The

input means inputs color image data, and the generating means generates flag data

indicating an attribute of an image corresponding to the color image data from the color

image data, with respect to each pixel of the image. The first pixel density converting

means pixel-density converts the image data at a designated magnification, and the second

pixel density converting pixel-density converts the flag data in accordance with the

designated magnification. The output means makes a process of the pixel density

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converted image data different every pixel in accordance with the flag data and outputs the processed image data. A pixel converting method of the first pixel density converting means is different from a pixel converting method of the second pixel density converting means. The second pixel density converting means performs a logical arithmetic operating process of flag values using a plurality of pixels near a target pixel when the designated magnification is reduction, and performs a processing using a nearest neighboring pixel of the target pixel when the designated magnification is enlargement.

Among other notable features of Claim 1 are (1) generating flag data indicating an attribute of an image corresponding to input color image data, with respect to each pixel of an image, and (2) making the pixel density conversion of each pixel different from that of the generated flag data.

Sakai, as understood by Applicant, relates to a document composite image display method and device utilizing categorized partial images. Sakai discusses that an image is divided into areas according to attributes, and the divided areas are size-reduced.

Kanno, as understood by Applicant, relates to image processing with a dithering scheme. Kanno discusses that a multivalued data generation process according to the characteristic of an image is performed for the relevant image information.

Harrington, as understood by Applicant, relates to intelligent scaling of images stored in low-cost image buffers. Harrington discusses that an image is classified into a smoothed area and an edge, and scaling is independently performed with respect to each of the smoothed area and the edge.

Seki, as understood by Applicant, relates to an image recognition method

and discusses that plural reduction images respectively having resolutions are formed from an image, proximity correlation is obtained with respect to each resolution, and the target is cut out according to the obtained proximity correlation.

However, nothing in <u>Sakai</u>, <u>Kanno</u>, <u>Harrington</u>, and <u>Seki</u>, whether considered separately or in any permissible combination (if any) would teach or suggest that flag data is generated with respect to each pixel of an image, as recited in Claim 1. Further, nothing in these references would teach or suggest that pixel density conversion of each pixel is made different from that of the generated flag data, as recited in Claim 1.

These references merely show pixel density conversion for a pixel of an image. <u>Harrington</u> (Figs. 4 and 5 of which were cited in the Office Action), merely discusses that the smoothed area (i.e., pixel) and the edge (i.e., pixel) of the image are subjected to the pixel density conversion process.

Accordingly, nothing in <u>Sakai</u>, <u>Kanno</u>, <u>Harrington</u>, and <u>Seki</u>, whether considered separately or in any permissible combination (if any) would teach or suggest generating flag data indicating an attribute of an image corresponding to input color image data, with respect to each pixel of an image, as recited in Claim 1. Furthermore, nothing in <u>Sakai</u>, <u>Kanno</u>, <u>Harrington</u>, and <u>Seki</u>, whether considered separately or in any permissible combination (if any) would teach or suggest "a pixel converting method of said first pixel density converting means is different from a pixel converting method of said second pixel density converting means", as recited in Claim 1. Moreover, nothing in <u>Sakai</u>, <u>Kanno</u>, <u>Harrington</u>, and <u>Seki</u>, whether considered separately or in any permissible combination (if any) would teach or suggest "said second pixel density converting means performs a

logical arithmetic operating process of flag values using a plurality of pixels near a target pixel when the designated magnification is reduction, and performs a processing using a nearest neighboring pixel of the target pixel when the designated magnification is enlargement", as recited in Claim 1.

Accordingly, Claim 1 is seen to be patentable over Sakai, Kanno, Harrington, and Seki, whether considered separately or in any permissible combination (if any).

Independent Claims 17 and 18 each recite features which are similar in many relevant respects to those discussed above with respect to Claim 1 and therefore are also believed to be patentable over Sakai, Kanno, Harrington, and Seki for at least the reasons discussed above.

Claim 16 is directed to an image processing apparatus including input means, generating means, first and second pixel density converting means, and output means. The input means inputs color image data, and the generating means generates flag data indicating an attribute of an image corresponding to the color image data from the color image data. The flag data is indicative of a character, a figure or a mesh with respect to each pixel of the image. The first pixel density converting means pixel-density converts the image data at a designated magnification, and the second pixel density converting means pixel-density converts the flag data in accordance with the designated magnification. The output means makes a process of the pixel density converted image data different every pixel in accordance with the flag data and outputs the processed image data. The second pixel density converting means makes a converting method different in accordance

with attributes of the flag data. The second pixel density converting means performs a logical arithmetic operating process of flag values using a plurality of pixels near a target pixel when the flag data is indicative of the character of the figure, and performs a processing using a nearest neighboring pixel of the target pixel when the flag data is indicative of the mesh.

Among other notable features of Claim 16 are (1) generating flag data indicating an attribute of an image corresponding to input color image data, the flag data indicative of a character, a figure or a mesh with respect to each pixel of the image, and (2) performing a logical arithmetic operating process of flag values using a plurality of pixels near a target pixel when the flag data is indicative of the character or the figure, and performing a processing using a nearest neighboring pixel of the target pixel is performed when the flag data is indicative of the mesh. By virtue of the features of Claim 16, for example, an erroneous judgment in a case where mesh judgment accuracy is insufficient can be eliminated when the reduction process is performed.

On the other hand, as explained above, nothing in Sakai or Kanno, whether considered separately or in any permissible combination (if any) would teach or suggest "said second pixel density converting means performs a logical arithmetic operating process of flag values using a plurality of pixels near a target pixel when the flag data is indicative of the character or the figure, and performs a processing using a nearest neighboring pixel of the target pixel when the flag data is indicative of the mesh", as recited in Claim 16.

Accordingly, Claim 16 is seen to be patentable over Sakai and Kanno, whether considered separately or in any permissible combination (if any).

Independent Claims 19 and 20 each recite features which are similar in many relevant respects to those discussed above with respect to Claim 16 and therefore are also believed to be patentable over Sakai and Kanno for at least the reasons discussed above.

Claim 21 is directed to an image processing apparatus including input means, generating means, first and second pixel density converting means, and output means. The input means inputs color image data, and the generating means generates flag data indicating an attribute of an image corresponding to the color image data from the color image data. The first pixel density converting means pixel-density converts the image data at a designated magnification, and the second pixel density converting means pixel-density converts the flag data in accordance with the designated magnification. The output means makes a process of the pixel density converted image data different every pixel in accordance with the flag data and outputs the processed image data. The first pixel density converting means gives an offset to a start position of an output pixel position so that an output pixel value after pixel density converting the image data is generated by interpolation calculation between the neighboring adjacent pixels.

By virtue of the features of Claim 21, by giving an offset to the start position of the output pixel position, it is possible to prevent that, when the reduction process is performed, (1) the case in which original pixel (flag data) is output as shown for example in Fig. 7, and (2) the case in which the original pixel value (flag data) is

interpolated and then output, alternately occur. Moreover, all the output pixel values are generated by the interpolation calculation between the neighboring adjacent pixels as shown for example in Fig. 9, whereby output image quality can be improved.[1]

On the other hand, as explained above, Sakai and Kanno do not teach or suggest that flag data is generated with respect to each pixel of the image. Further, Sakai and Kanno do not teach or suggest that the pixel density conversion of the pixel is made different from that of the generated flag data. Moreover, Sakai and Kanno do not teach or suggest offsetting a start position of an output pixel position after the pixel density conversion, as recited in Claim 21.

Frederic, as understood by Applicant, merely discusses the resolution conversion of an image, and Applicant has found nothing in that patent that would remedy the deficiencies of Sakai and Kanno discussed above.

Accordingly, Claim 21 is seen to be patentable over Sakai, Kanno, and Frederic, whether considered separately or in any permissible combination (if any).

Independent Claims 22 and 23 each recite features which are similar in many relevant respects to those discussed above with respect to Claim 21 and therefore are also believed to be patentable over Sakai, Kanno, and Frederic for at least the reasons discussed above.

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1/It is of course to be understood that the references to various portions of the present application are by way of illustration and example only, and that the claims are not limited by the details shown in the portions referred to.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

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